

NON-PUBLIC?: N
ACCESSION #: 9104260217
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Joseph M. Farley - Unit 2 PAGE: 1 OF 03

DOCKET NUMBER: 05000364

TITLE: Dropped Control Rod Causes Reactor Trip
EVENT DATE: 04/01/91 LER #: 91-001-00 REPORT DATE: 04/23/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: D. N. Morey, General Manager - TELEPHONE: (205) 899-5156
Nuclear Plant

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: AA COMPONENT: XXXX MANUFACTURER: W120
REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

At 1055 on 4-1-91, while operating at approximately 100 percent power, a reactor trip occurred when rod H-10 dropped into the core. The reactor trip occurred due to a high negative flux rate as detected by the power range nuclear detectors. The operator was performing FNP-2-STP-5.0 (Full Length Control Rod Operability Test). When control rod group C was tested, rod H-10 dropped into the core.

This event was caused by defective circuit card(s) in the rod control system. The suspect cards were replaced and the unit returned to power operation at 1208 on 4-09-91.

END OF ABSTRACT

TEXT PAGE 2 OF 3

Plant and System Identification

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System codes are identified in the text as XX!.

Summary of Event

At 1055 on 4-1-91, while operating at approximately 100 percent power, a reactor trip occurred when rod H-10 dropped into the core. The reactor trip occurred due to a high negative flux rate as detected by the power range nuclear detectors. The operator was performing FNP-2-STP-5.0 (Full Length Control Rod Operability Test). When control rod group C was tested, rod H-10 dropped into the core.

Description of Event

On 4-1-91, the unit was operating at approximately 100 percent power and surveillance test procedure FNP-2-STP-5.0 AA! was being performed. At 1055, when the operator was moving the control bank C rods he saw rod H-10 drop into the core. A high negative flux rate reactor trip was generated by the power range nuclear detectors IG!. Following the trip, the operators implemented FNP-2-EEP-0 (Reactor Trip or Safety Injection) and FNP-2-ESP-0.1 (Reactor Trip Response), ensuring that the unit was safely in Mode 3. The unit was maintained in a stable condition.

An intensive investigation was performed to determine the cause of the dropped rod. The investigation included both APCo and Westinghouse personnel. All fuses in the rod control cabinets were checked. Continuity checks were performed for the affected rod bank on cables, coils and connections inside and outside of containment. The reactor missile shield was removed to allow the rod control cable connectors on the reactor head to be examined. A Westinghouse rod control system field service engineer came to FNP to assist in the troubleshooting. The investigation continued with no problems noted until 4-7-91.

On 4-7-91, while withdrawing bank C rods, rod F-8 did not indicate outward motion. Additional troubleshooting continued with no deficiencies noted. Due to the intermittent nature of the problem, a test was developed utilizing recorders. Recorders were connected to monitor appropriate rod control electronic signals continuously during the test. With the recorders in operation, the affected rod bank was again cycled. During the first three rod bank withdrawal and insertion cycles, no abnormalities were noted with the rod movement or the recorded signals. On withdrawal during the fourth cycle, however, two rods in bank C dropped partially into the core. The intermittent problem was

visible on the recorders. Evaluation of the recorder traces showed this group of rods received incorrect current orders for the stationary gripper coils. Three circuit cards that could cause this condition were replaced. Bank C rods were tested after this card replacement. No further problems were noted.

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Cause of Event

This event was caused by defective circuit card(s) in the rod control system.

Reportability Analysis and Safety Assessment

This event is reportable because of the actuation of the reactor protection system. After the trip, the following safety systems operated as designed: main feedwater was isolated by automatic closure of the flow control valves and bypass valves, auxiliary feedwater pumps started automatically and provided flow to the steam generators, and pressurizer heaters and spray valves operated automatically as requested to maintain system pressure. The source range nuclear detectors energized automatically.

There was no effect on the health and safety of the public.

Corrective Action

The suspect circuit cards were replaced and sent to Westinghouse for evaluation.

Additional Information

The unit was returned to power operation at 1208 on 4-9-91.

Description Part Number Location

Firing Circuit Spin No. CPELC02 6050D12G01 2 AC Power Cabinet
I/O Alarm Circuit Amplifier - A804 3359C65G01 Logic Cabinet
Slave Cyclor Decoder - A401 3359C62G02 Logic Cabinet

This event would not have been more severe if it had occurred under different operating conditions.

ATTACHMENT 1 TO 9104260217 PAGE 1 OF 1

Alabama Power Company
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201

Telephone 205 868-5086

J. D. Woodard April 23, 1991 Alabama Power
Vice President-Nuclear the southern electric system
Farley Project 10 CFR 50.73

Docket No. 50-364

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Joseph M. Farley Nuclear Plant - Unit 2
Licensee Event Report No. LER 91-001-00

Gentlemen:

Joseph M. Farley Nuclear Plant, Unit 2, Licensee Event Report No. LER 91-001-00 is being submitted in accordance with 10 CFR 50.73. If you have any questions, please advise.

Respectfully submitted,

J. D. Woodard

JDW/BHW:maf8.28

Enclosure

cc: Mr. S. D. Ebnetter
Mr. G. F. Maxwell

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